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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,576	05/03/2005	John Robert Duchek	1575 WO/US	2302

7590 04/24/2007
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EXAMINER
DENTZ, BERNARD I

ART UNIT PAPER NUMBER

1625

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/533,576	Applicant(s) DUCHEK, JOHN ROBERT	
	Examiner Bernard Dentz	Art Unit 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Cahn cited by applicants. It reports early work in the investigation of the structure of cannabinol. The most important part relating to the rejection is found at p. 1344 last par. "Oxidation of cannabinol with permanganate or with nitric acid destroyed the phenolic portion of the molecule, and milder oxidizing agents gave intractable products which were probably polymolecular. To obtain further information concerning the ten carbon atoms not represented by cannabinolactone, derivatives in which the phenolic group was protected were examined. The benzenesulphonyl and m-nitrobenzenesulphonyl derivatives were prepared, but the former proved difficult to crystallize and was not investigated in detail."

Although the more proper benzene sulfonate nomenclature is not used in the report of the experimental work in the par. bridging p. 1345 and 1346 it is clear the benzene sulfonate of cannabinol was prepared.

Claims 3,10,13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Melikian et al, cited by applicants. It discloses the reaction of 5-dimethylamino-1-naphthalensulfonyl chloride in the presence of base i.e. Na₂CO₃, with delta 8- and delta 9-tetrahydrocannabinol to form the corresponding sulfonates. Note that the product

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sulfonates are crystallized by prolonged storage at -5 degrees in hexane. See p. 1025, col. 2.

Claims 3,4,5,10, 13,14, 15 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fahrenheit et al US Patent 3,636,058 cited by applicants.. Example 12 teaches the same reaction as above using m-nitrobenzenesulfonyl chloride. See col. 8, lines 53-58 as well as Ex. 12 which teach recrystallization of the cannabinoid aryl sulfonate to purify the cannabinoid aryl sulfonate. Of course after this recrystallization Ex. 12 recites the hydrolysis of the aryl sulfonate to recover the cannabinoid. Pyridine is both a solvent and a base and thus meets claim 3.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clearly the instant aryl sulfonates of cannabinol type compounds are obvious in view of Cahn's teaching of using aryl sulfonates to protect the phenolic moiety in reactions used to elucidate the structure of cannabinol.

Claims 3-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahreholtz, supra. Likewise, clearly the instant use of aryl sulfonyl halide in the purification of cannabinoid through the formation of the aryl sulfonates of cannabinols is

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rendered obvious by the above mentioned teachings of the reference. The details in the reaction forming the sulfonates and the crystallization and recrystallizations thereof which are not shown by the reference as in claims 6, 9, 16 and 17 e.g. are clearly basic well known modifications of these commonly known processes.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A is a ring and cannot be an alkane, alkene or diene.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Dentz whose telephone number is 571-272-0683. The examiner can normally be reached on Mon-Fri from 8 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas McKenzie, can be reached on 571 272-0670.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dentz

4-19-2007

A handwritten signature in black ink, appearing to read "B. Dentz", with a stylized flourish at the end.

BERNARD DENTZ
PRIMARY EXAMINER